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Procedia - Social and Behavioral Sciences 170 (2015) 18 – 26

Procedia
Social and Behavioral Sciences

AcE-Bs2014Seoul
Asian Conference on Environment-Behaviour Studies
Chung-Ang University, Seoul, S. Korea, 25-27 August 2014
" Environmental Settings in the Era of Urban Regeneration"

Identification of Soft Cost Elements in Green Projects: Exploring experts' experience

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Abstract

The most commonly cited green building barrier is the high development costs of construction. Many developers share the common perception that green building construction incurs expensive additional costs. A preliminary study was conducted with four industry experts via semi-structured interviews to investigate the soft cost elements (SCEs) in the project. Eighteen SCEs were identified and categorized into three groups namely Professionals, Procedures, and Legal Requirements. Three of the SCEs were found to be unique to green building and contributed a financial concern. The study rendered that these SCEs may influence a developer's decision to invest in green building development.

Peer-review under responsibility of Centre for Environment-Behaviour Studies (cE-Bs), Faculty of Architecture, Planning & Surveying, Universiti Teknologi MARA, Malaysia.

Keywords: Soft cost elements; green building; developer decision; development cost

1. Introduction

The topic of green buildings has often been a heated discussion in both academia and industry. According to Isa et al. (2013), investors are attracted to invest in green office buildings due to higher investment returns and benefits expected. These include higher occupancy rate and market value, lower risks, higher cost savings from improved energy and water efficiency, and social and environmental benefits such as improved health and work productivity. Unfortunately, these benefits can only be realized over an extended period and need to be communicated to property investors (Choi, 2009). While some

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Peer-review under responsibility of Centre for Environment-Behaviour Studies (cE-Bs), Faculty of Architecture, Planning & Surveying, Universiti Teknologi MARA, Malaysia.
doi:10.1016/j.sbspro.2015.01.009

researchers have supported findings that green building can be cost-neutral or cost-saving, others have refuted this testimony. A study from New Zealand reported that the issue of cost prevents the incorporation of sustainable features in developments (Bond &Perrett, 2012). Proven statistically, high development cost of green building has been largely cited as the biggest barrier in green building construction (Zhang et al., 2011; Sood & Peng, 2011; ZainulAbidin, 2010; Shari, et al., 2009).Since developers are essentially profit driven, the idea of investing higher development costs for green building project with risk of long term profit return often serve as disfavour (Bandy, et al., 2007; Shafii et al., 2006). Generally, investing a higher capital for a green building does not appeal to developers when a cheaper alternative remains available. This scenario ultimately inhibits the progress towards sustainability. Hoffman & Henn (2008) suggested that the growth in green building movement shall continue to stall unless the significant social and psychological barriers are overcome as political incentives are not significant enough to change the behaviour of developers.

Thus, despite the various efforts of the Government to drive forward the sustainability agenda by introducing incentives and policies, green building development in Malaysia remains slow (Zainul Abidin, 2010; Esa et al., 2011). Similar to other countries, cost is also viewed as the main hurdle in attracting wider desirability for green buildings in Malaysia. Cost for construction projects can be divided into three categories: land, hard and soft cost. Land cost will not vary regardless it is a conventional or green project; however, hard and soft cost are believed to be influenced by the choice to be green. Hard cost has been given much attention by scholars, but soft cost, which is also known as 'hidden' cost remain elusive in its contribution to green building cost increment. As such, this paper discusses the non-technical aspects of project cost and their influence on the overall development from the developers' perspective.

2. Literature Review

As previously stated, project cost can be divided into land cost, hard costs and soft costs (Emerging Professional's Companion, 2013; ZahirahM.A.&ZainulAbidin, 2012; Kubba, 2012; Zhang et al., 2011; Yudelson, 2009). Land costs or site costs cover those expenses for land acquisition and development of the project, which usually includes costs such as land purchase, title transfer, site clearance and others. Hard costs refer to direct physical construction costs and soft costs refer to other various costs incurred to move the project forward. The2C – Construction Costs report by Emerging Professional's Companion (2013) defined, "Soft Costs include a variety of costs incurred by the owner to move the project forward. Design fees, management fees, legal fees, taxes, insurance, owner's administration costs, and a variety of financing costs fall into this category. Moving costs and other tenant-related costs may be placed in the soft cost category" (p. 162). The Transportation Research Board (2010) referred soft costs as the expenses incurred on professional services for completing the project under the Soft Cost Categories (SCCs). According to the TCRP Report 138: Estimating Soft Costs for Major Public Transportation Fixed Guideway Projects, "soft costs are the expenditures necessary to plan, design, and manage the project, while hard costs are the expenditures required for construction." (p. 8).

In most studies of green building cost, focus has been given to hard cost, particularly costs to include sustainability features in the building. Many scholars have discussed how green building project cost may or may not inflate when sustainability features are added to meet green building requirements (Kubba, 2012; Zhang at al., 2011; T.I.Lam & Chan, 2011; Tatari & Kucukvar, 2011). However, Yudelson (2009) reported that the bulk of additional cost in green building does not come from the hard cost, but instead come from soft cost. Most of these costs are incurred in administration processes involved in the project development. Hence, it is important to investigate the elements of soft cost that contribute to this addition.

Based on this concept, ZahirahM.A.& ZainulAbidin (2012) identified six soft cost elements (SCEs) in green building i.e. insurance, developer's experience, design cost, certification, commissioning, and energy modelling. This framework was later revised with regards to their role in developers' decision to invest in green building. The new breakdown of green building cost elements included consultants, green building consultant, certification, commissioning, market, and tax (ZahirahM.A. & ZainulAbidin, 2013). This framework was adopted as the base reference in a preliminary study via interviews with industry experts for validation and identification of new SCEs that were not previously included.

The cost breakdown illustrated by ZahirahM.A&ZainulAbidin (2013) has distinguished hard cost and soft cost into ten elements. The hard cost elements cover expenses related to architecture works, mechanical and electrical works, civil and structural works and other physical construction works. The SCEs cover expenses related to consultants, Green Building consultant, certification, commissioning, market, and tax. ZahirahM.A&ZainulAbidin (2013) explained that few consultants have the ability or expert knowledge to participate in green building projects as this remains a niche area. Hence, the design phase for green building usually demands additional exercises and services from the consultant team, pushing the consultant fee to higher rates (Yudelson, 2009; Means, 2010; Lee, 2010). The Green Building Consultant represented a separate SCE as this is additional to the regular consultant team and contributed additional cost(EE Solutions, 2012). Green buildings need to undergo a rigorous assessment using a green building rating tool in order to be certified green and a certification fee applies. This fee is charged differently depending on the type of project, scale of the project, and rating tool (USGBC, 2013; BCA Green Mark, 2012). Green buildings also have to perform a more complex commissioning process compared conventional buildings that embody the bulk of soft cost. This is to assure the green technology features introduced function according to the expected performance (Yudelson, 2009; D'Antonio, 2007). Another SCE is the market factor which influences the asking price for green building depending on the demand and supply ratio (Emerging Professional's Companion, 2013). Lastly, support provided by the Government such as a tax exemption for green building owners should encourage the growth of sustainable development (Emerging Professional's Companion, 2013).

3. Research Methodology

A preliminary study using a qualitative approach was conducted with experts from the building industry to understand the local context of cost elements in green building implementation. Maxwell, (2005) affirmed that qualitative research approach is suitable for understanding a particular context, and identifying unanticipated phenomena where new theories may be created. Two architects, one quantity surveyor, and one developer were selected using snowball sampling technique in order to identify relevant experts in the construction field. Snowball sampling is used to locate information-rich sources in a specific population. It is a non-random sampling technique where respondents are asked to nominate other respondents who can offer more information relevant to the study until the point of saturation when no new findings can be found (Morgan, 2004). A snowball sampling technique was used to gather expert information from particular individuals with the most knowledge in the subject area.

All respondents have industry experience of more than 18 years and have access to relevant cost information of conventional and green building. The objectives of the interviews are to identify and verify SCEs relevant to the Malaysian building industry as information from local literature is limited. Each interview lasted an average of 30 to 55 minutes, and was recorded using a voice recording application. The project cost model that was originally adopted from ZahirahM.A & ZainulAbidin (2013) was then modified according to the interview findings to suit the local context. After the fourth interview, responses from the interviews became stable and deemed to have reached the point of saturation (Creswell, 2012; Glaser & Strauss, 1967). As the cost model evolved with new inputs, a better

understanding of the SCEs in both conventional and green buildings was gained (Bogdan & Biklen, 2006).

4. Research Finding

4.1. Overview of industry practitioners towards green building development in Malaysia

Based on the interviews, the experts had a unanimous perception that green buildings are expensive due to the additional cost to pay the green building consultant, additional cost for green certification registration, and added project complexity to comply with green building requirements. For non-residential buildings in GBI certification, the most important criteria that carry the highest number of points are 35 out of 100 points are focused on Energy Efficiency (EE). This means that more technology enhancements must be installed in order to ensure the HVAC and lighting systems are efficient to the standards that comply with GBI certification. According to the expert panel, this amounts to an additional 3.5 percent on the total project cost for Gold certification green buildings, and 1.7 percent for certified green buildings. The panel opined that, although many literatures have argued that this initial cost can be regained with many cost savings in the long term, the payback period is too long and is not worthwhile especially to those developers who wish to sell the building to other users. While this is mainly hard cost, the panel expressed that this costly obligation tips the scales towards an unfavourable perception on green buildings. One of the experts also addressed his concern that green buildings were becoming a publicity stunt for certain parties to earn more money. Referring to a green building project in Kuala Lumpur he was previously involved in, the respondent suggested that other international green rating tools such as LEED are easier to achieve at less capital cost compared to the Malaysian GBI rating tool which emphasises significantly on energy efficiency. This becomes a de-motivating factor for developers to participate in green building development.

4.2. Soft Cost Elements (SCE) identification

A new model of soft cost elements was developed based on findings from the interview. See figure 2. Using qualitative analysis of the experts' responses, the study identified eighteen (18) SCEs which are categorized into three different groups i.e. Professionals, Procedures, and Legal Requirements. These groupings comprehensively cover all soft costs elements applicable for both conventional building and green building. Three of the SCEs were found to be unique to green building and may have significant financial impact to the project.

4.2.1 Professionals

The first category is Professionals that enlist SCEs related to necessary experts to engage for the project. There are eight SCEs in this category namely, Consultants, Landscape Architects, Town Planners, Soil Analyst, Surveyor, Environmental Specialist, Green Building Consultant, and Green Building Certifier.

- A1 Consultants
  Consultants consist of the regular professional team i.e. Architect, M&E Engineer, C&S Engineer, and Quantity Surveyors, who follow through the entire building project from start to finish and are paid successively. The total payment for this team of consultants is usually 6 to 8 percent of the overall project cost depending on the scale of the project.
- A2 Landscape Architect

The Landscape Architect on the other hand, is given a one-off payment of 10 percent out of landscape costs. In some cases however, the payment for landscape architect is included under the payment for Architect. According to industry experts, some Local Authorities require landscape drawings as part of the submission for building approval.

- A3 Town Planner
  The Town Planner is paid according to the Board of Town Planners, Malaysia (Lembaga Perancang Bandar Malaysia, 2005)scale of fees which sets a basic fee of RM35,000 plus RM500 per acre of land for planning permission of layout plan approval. This amount is paid successively during the submission to local authority stage until the release of the Development Order.
- A4 Soil Analyst
  Soil testing is necessary to assess the suitability of the soil for construction activities, and assist in making informed decisions for the project such as the type of foundation to adopt. This is usually done during the initial phase of the project, before design stage. The fee for soil testing is paid by the developer on a one-off basis to the soil analyst company employed based on the number of points taken for soil testing.
- A5 Surveyor
  The land surveyor is employed to establish the contour and boundaries of the site by producing survey drawings before the start of the project. The fee for land survey is paid one-off upon completion of the work, and is calculated following the scale of fees for title surveyors (13 schedule) (Land Surveyors Board Malaysia, 2011) under the Licensed Land Surveyor Act 1958.
- A6 Environmental Specialist
  Another SCE is the Environmental Impact Assessment (EIA) which is required under section 34A of the Environmental Quality Act 1974 (Amendment 2006) (Environmental Quality Act 1974, 2006). The EIA aims to assess the overall impact on the environment of development projects proposed by the public and private sectors paid to the EIA consultant for developments of more than 50 hectares or sites located within close proximity to natural surroundings such as ocean, river, forest, or hills.
- A7 Green Building Consultant
  For green building projects in Malaysia that follow the Green Building Index (GBI) Certification, a Green Building Consultant is required to provide services to enable building projects to achieve GBI accreditation. The Green Building Consultant is a team of licensed professionals who can provide advice on green building design, systems and facilitate certification process. However, payment for the Green Building Consultant is paid separately following the scale of fees set by GBI, which ranges between 0.15 to 0.40% of the project cost.
- A8 Green Building Certifier
  Additionally, a GBI Certifier is engaged to perform a detailed assessment and accreditation of building projects submitted to the GBI Accreditation Panel for GBI Certification. The cost of the GBI Certifier is included in the GBI Application fee. According to the expert panel, this cost is significantly expensive as it is relative to the project size and green certification level aimed for.

4.2.2. Legal Requirements

The second category is Legal Requirements which enlist SCEs payable to Government entities. There are five SCEs in this category namely, development charges, submission fees to the local authority, utility contribution fees, improvement service fund (ISF), and contribution to infrastructure.

- B1 Development charges
  Development charges are charged by the local authority of the development area for the land that is to be developed. It varies from project to project depending on the local authority in charge. For example,

MajlisBandaraya Shah Alam sets the payment at 30 percent of the difference in land value before and after conversion of land use. This payment must be made to the local authority before the Development Order is obtained.

- B2 Submission fees
  Other than that, developers have to pay submission fees to the local authority in order to obtain a development approval. In Kuala Lumpur, DewanBandaraya Kuala Lumpur (DBKL) has set their processing fee at a fixed rate of RM40 per 1000sq for the first 10,000sq, RM20 per 1000sq for the first 5000sq, and RM10 for each 1000sq balance thereof (One Stop Centre DBKL).
- B3 Utility contribution fees
  Utility contribution fees usually include payments for sewerage system, water, electric, and telecommunication service supply and are paid to Indah Water Konsortium (IWK), SYABAS, and TNB Malaysia as well as the relevant telecommunication service provider. Under the Street, Drainage and Building Act 1974 Act 133, Part IV Miscellaneous, Section132, developers must pay a contribution fee to the local authority for the beautification, construction or laying of any street, sewer, drain, culvert, gutter or water-course (Street, Drainage and Building Act 1974 Act 133, 1997).
- B4 Improvement Service Fund (ISF)
  ISF is revenue collected by the Government under the Street, Drainage and Building Act 1974 (Act 133), Part VI: Section 132. The ISF is administered by the local authority of the development area. For example in Petaling Jaya, the City Council imposes a payment of RM500 for every apartment unit above RM100,000. Monies collected in the ISF are used for improvement of basic amenities like roads and such and overcome problems impacted by the new development in the area.
- B5 Contribution to infrastructure
  Another SCE mentioned by the expert panel is the contribution to infrastructure fee. This is an amount set by the local authority if the development area has future planning to install any infrastructures that would benefit the building development. However, the calculation of this fee is unclear and only occurs in certain cases.

4.2.3. Procedures

The third category is Procedures which enlists those other SCEs in development cost needed to move the project forward. There are five SCEs identified here including marketing, project management, interim finance, contingency and green certification fee.

- C1 Marketing
  Marketing cost is the amount allocated in the project development budget to facilitate activities related to sales and promotion of the end product.This is usually three percent of the Gross Development Value (GDV).
- C2 Project Team Management
  The project team management cost is dedicated for the staff team managing the project to finance operation and administration costs, including salary of the staffs. This is usually capped at 1.75 percent of the building works cost. However, this remains a grey area considering that the same staffs usually administer other projects at the same time and are paid on a regular basis regardless of the projects they handle.
- C3 Interim finance
  Interim finance is a short term loan, otherwise called as construction loan provided by banks to pay production costs throughout the construction phase. This will cover expenses to kick start the project and fund construction operations before any revenue can be collected. Findings, show that this amount

is usually 50 percent of building works cost, paid over the span of construction phase with an interest depending on the amount of time it takes to complete the project.

- C4 Contingency
  Contingency cost is a monetary amount reserved for unforeseeable and uncertain eventualities associated with the normal execution of the project. This is generally five percent of building works cost, but varies according to the degree of uncertainty and risk known at the time of estimation.
- C5 Green Certification
  Lastly is the Green Certification Registration fee, which only applies to buildings seeking green accreditation. According to the Green Building Index, the GBI registration fees vary depending on the size of the project. Registration fees start at RM5000 for single residences below 2000m^2 floor area to RM45,000 for extra-large projects below 100,000m^2 floor area, and even more for mega projects of more than 100,000m^2 floor area. Although the cost of obtaining certification may be relatively small compared to the overall project cost, property investors perceive this as one of the main barriers to invest in green development (Bond & Perrett, 2012). Industry practitioners felt that this cost is expensive and a financial inconvenience to developers considering the additional costs that they have had to factor in to meet green building standards.

5. Discussion

A total of eighteen (18) SCEs were derived from interviews with four industry experts and references made to relevant documents and secondary sources. These SCEs are grouped under three categories i.e. Professionals, Legal requirements, and Procedures. Three out of the eighteen SCEs, namely green building consultant, green building certifier, and green building registration are additional elements applied in green buildings. Research findings from the interview analysis indicated that green building construction is complex, and consequently incur additional costs in a number of areas to fulfil the green certification requirements. It was discovered that GBI, our Malaysian green building rating tool, was less preferred as compared to other rating tools for the reason that GBI stresses too much on energy efficiency in non-residential buildings, which is an expensive aspect to fulfil. In view of soft costs, all respondents agreed that there are multiple SCEs incurred at the early project development phase for both conventional and green buildings.

6. Conclusion

Based on the analysis of all SCEs, it is concluded that soft cost does influence developers' decision to invest in green development. This is because many SCEs are incurred on top of the physical construction costs of a building project and varies directly with the size and complexity of the project. Since green buildings are naturally more complex due to the specific standards required meeting, the SCEs in green buildings are also more, adding to the total project cost. In all the interviews, the industry experts expressed an unfavourable perception towards green buildings and poor interest to undertake green building projects due to financial concerns. Given that the current soft costs for a conventional building is already high in consideration of the regular multiple SCEs that apply, developers are reluctant to add extra costs for green building development. Unless a statutory obligation is imposed on all building projects to include green features, most developers find this feat an unnecessary hassle. The study suggests that the Government of Malaysia should address this financial issue by mitigating the additional SCEs of green building as a support towards green building investment.

Acknowledgements

This research is funded by the Ministry of Higher Education (MOHE), Malaysia under the MyBrain15 scholarship.

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